SOLID-STATE
AURAL
STUDIO-TRANSMITTER LINK
MODEL PCL-101

Bulletin 243B

for AM and Intercity Relay Service

PCL-101 Transmitter

PCL-101 Receiver

Available for -- 148-174 MHz
215-240 MHz
300-330 MHz
450-470 MHz
890-960 MHz

MOSELEY ASSOCIATES, INC.

MODEL PCL-101 AURAL ST

featuring

- ☐ direct frequency modulation
- ☐ subcarrier capability
- ☐ compactness and serviceability
- ☐ front-panel metering
- ☐ modular-type construction
- ☐ full convection cooling
- ☐ all solid-state circuitry

Designed for continuous service, the **Model PCL-101 Aural Studio-Transmitter Link** (STL) provides high-quality audio performance for the modern broadcast station. All solid-state circuitry and advanced techniques enable excellent performance of the PCL-101. Now, an STL system is available for use in either the 150 MHz, 220 MHz, 300 MHz, 450 MHz, or 950 MHz aural studio-transmitter link bands. The PCL-101 can replace leased telephone or other circuits for relaying program audio to a remotely located broadcast transmitter. The PCL-101 STL represents a modest investment for quality service. For use in the United States, the PCL-101 is available for operation in the 950 MHz band only.

Wireless Remote Control is easily accomplished with the PCL-101 STL and the Moseley Associates Remote Control Systems. Working as companion systems, the main channel of the PCL-101 provides an excellent program circuit and the Moseley Remote Control Systems enable accurate metering and control of any broadcast transmitter . . . . all without the use of leased telephone circuits! The PCL-101 system accepts program audio and one FM subcarrier. Contact our Marketing Department for quotations on complete STL and remote control systems to fulfill your requirements.

Rear view of PCL-101 Receiver. Power, RF, and multiplex connectors are on the right. The audio and squelch relay contacts are available from the barrier strip on the left.

Direct frequency modulation is used in the PCL-101 Transmitter. **Superior carrier stability** is accomplished with a voltage-controlled crystal oscillator (VCXO). Moseley Associates was the first manufacturer to use direct frequency modulation in an aural STL. The use of the VCXO assures crystal stability while offering a flat frequency response and lower distortion. The PCL-101 Transmitter requires only 89 mm (3.5 inches) of height in a standard rack space. It is completely self-contained with power supply and employs full convection cooling. A front-panel multimeter provides monitoring of important parameters including a position for monitoring the peak STL modulation level. Thus, audio levels can be set and the presence of program audio can be easily verified. Internal construction of the transmitter is skillfully designed with individual modules containing the audio circuitry, VCXO, and the RF power amplifier. In the 950 MHz version, an additional varactor diode multiplier assembly is added to the configuration shown at right. These modules are fully shielded in individual containers assuring maximum isolation and performance. Only the latest time-proven solid-state integrated circuits and transistors are used throughout.

The companion receiver is of the dual conversion superheterodyne type. Two complete I.F. amplifier sections are employed. Preceding the first mixer is an RF amplifier assuring excellent sensitivity. The two I.F. frequencies used are 30 MHz and 10.7 MHz. A carefully selected L-C filter is used in the 10.7 MHz I.F. stage. For those areas requiring greater I.F. selectivity, an optional crystal 10.7 MHz I.F. filter is available on special order. This optional crystal filter replaces the standard L-C filter. As in the transmitter, individual RF circuits have been mounted in individually shielded enclosures. This greatly improves the spurious response characteristics of the receiver and reduces cabinet radiation to negligible amounts. Serviceability has been considered in all stages of design of the receiver and transmitter. Thus, easy accessibility is afforded to all the printed circuit modules.

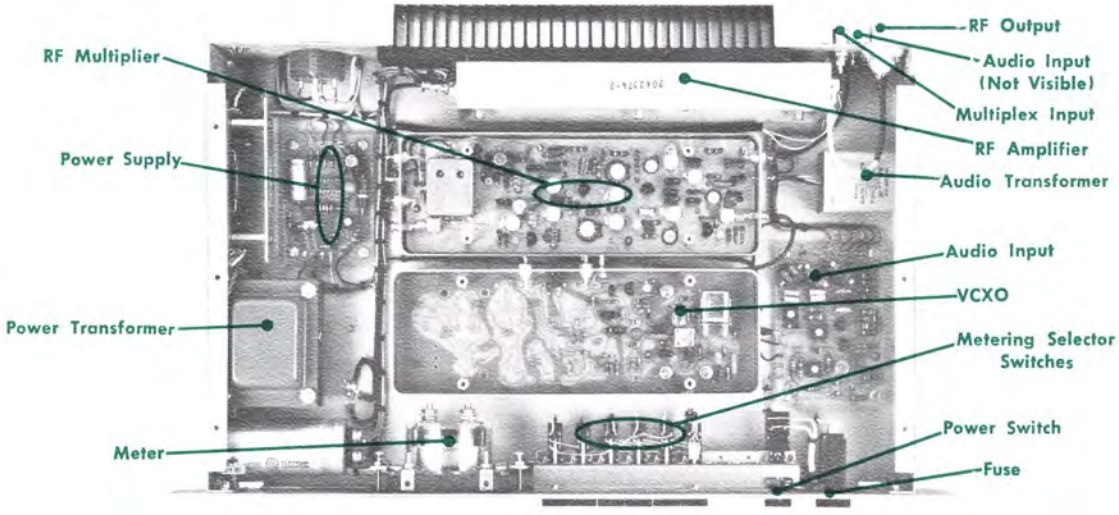
designed for conti

UDIO-TRANSMITTER LINK

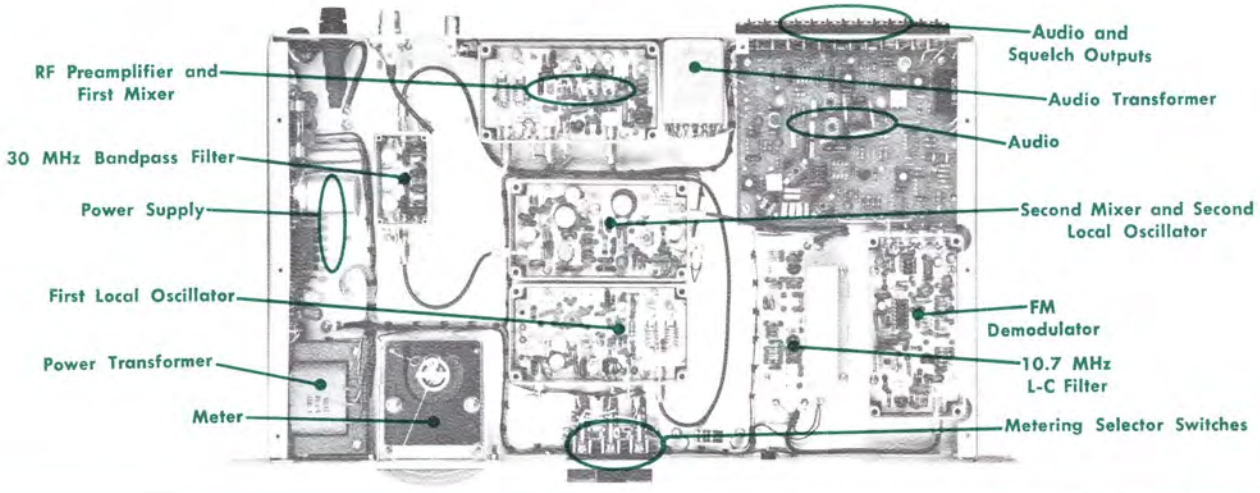
INTERIOR VIEWS - PCL-101

Shown below are 148-240 MHz versions. The 300-470 MHz and 890-960 MHz versions have slight differences.

TRANSMITTER



RECEIVER



Optional crystal I.F. filter module for PCL-101 Receiver. Module is direct replacement for standard L-C I.F. filter. This optional filter is not available for the 890-960 MHz Receiver.

Rear view of PCL-101 Transmitter. Heat sink for RF power amplifier and power supply is shown at center. Multiplex, RF and audio connectors are on the left.

uous duty service

Model PCL-101 Aural Studio-Transmitter Link

SPECIFICATIONS

SYSTEM

Audio Response	±1.5 dB, 50-15,000 Hz
Audio Distortion	Less than 1% 50-15,000 Hz. (Slightly higher with optional receiver I.F. crystal filter)
Signal-to-Noise Ratio	Better than 60 dB below 100% modulation
Modulation Capability	One program and one subcarrier channel
Power Requirements	120/240 VAC, 50-60 Hz, single phase

TRANSMITTER

Type	Direct FM of voltage-controlled crystal oscillator (VCXO)
RF Output (148-470 MHz)	15 watts maximum, 10 watts minimum into 50 ohm load. Infinite VSWR at all phase angles. Type N female connector.
(890-960 MHz)	7 watts maximum, 5 watts minimum into 50 ohm load. Infinite VSWR at all phase angles. Type N female connector.
RF Frequency Range	148-174 MHz, 215-240 MHz, 300-330 MHz, 450-470 MHz or 890-960 MHz.
Emission	40F3 (±5 kHz for 100% modulation, 148-240 MHz) 54F3 (±12 kHz for 100% modulation, 300-470 MHz) 80F3 (±25 kHz for 100% modulation, 890-960 MHz) Above represent basic carrier and do not include subcarrier. For FCC applications, request Sample Form 313.
Frequency Stability	±0.0005% (-20°C to 60°C)
Spurious Emissions	More than 65 dB below carrier
AM Noise	Better than 70 dB below carrier reference
Temperature Range	-20°C to 60°C
Program Channel Input	+10 dBm, 600 ohms, balanced
Multiplex Input	10,000 ohms, unbalanced, 1.5V p-p nominal
Subcarrier Frequency	26 kHz, external FM subcarrier generator and detector required.
Power Supply	Fully regulated, self-contained
Cooling	Convection
Front-panel Multimeter Functions	Peak audio, relative forward power, relative reflected power, current of final RF stage, relative IPA drive, and power supply output
Dimensions	8.9 cm (3.5") high, 48.4 cm (19") wide, 35.6 cm (14") deep

RECEIVER

Type	Superheterodyne, double-conversion and crystal-controlled
RF Input	50 ohms, Type N female connector
RF Frequency Range	148-174 MHz, 215-240 MHz, 300-330 MHz, 450-470 MHz or 890-960 MHz
Sensitivity 20 dB signal-to-noise ratio	148-240 MHz 0.7 microvolt; 300-470 MHz 1.5 microvolts; 890-960 MHz 3 microvolts
I.F. Selective	L-C Filter -6 dB ±90 kHz -60 dB ±300 kHz Optional Crystal Filter -6 dB ±44 kHz -60 dB ±75 kHz Note: Crystal filter not available with 890-960 MHz Receiver
Temperature Range	-20°C to 60°C
Program Channel Output	+10 dBm, 600 ohms, balanced
Multiplex Output	600 ohms unbalanced, 1.5V p-p nominal
Front-panel Multimeter Functions	Peak audio, limiter, and power supply output
Dimensions	4.5 cm (1-¾") high, 48.4 cm (19") wide, 27.9 cm (11") deep

Specifications subject to change without notice

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